

## RESULTS

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### *Unalaska Bay Zone*

#### **SUMMARY OF ZONAL SAMPLING**

Fisheries water quality sampling was conducted in the Unalaska Bay Zone from December 29, 2004 until March 24, 2005. A variety of sampling methods were used: tow nets, fisheries pots, snare pots, Pollock and Pacific cod vessel pom-pom packs, seawater strainers, seafood processors' seawater intake monitoring, passive snare devices, and beach surveys.

#### **TOW NET RESULTS**

During Phase 2 of the program, 25 tows were completed in the Unalaska Bay sampling zone over a period of six days between December 29, 2004 and January 10, 2005. During this period, the sampling vessel *F/V Alaskan Lady* was equipped with one tow net, which was deployed at depths ranging from 3-20 feet. Six oil observations were reported (Figure 6). The average CPUE for this phase of tow net sampling was 1.9 TPM (Appendix A).

During Phase 3 of the sampling program in the Unalaska Bay zone, focus was directed on the crab fisheries vessel transit routes and anchorage areas for snow crab fishing vessels as well as floating and shore-based processors. The *F/V Exito* and *F/V Alaskan Lady* conducted sampling tows in the transit lanes to snow crab fishing grounds. Within Unalaska Bay, the *F/V Northern Fury* conducted tow net trawls in areas where crab vessels anchored in wait for catch delivery. All tows in this sampling period were single-net tows of varying depth between 3-6 feet. Over a period of 5 days, 34 tows were completed, and 6 observations of oil were recorded (Figure 7). The average CPUE for this time period shown was calculated to be 0.7 TPM (Appendix A).

In the next two-day period, 20 tows were completed at depths of 3-6 feet. Six encounters with oil in the form of stains, smears, tar balls, and sheens were recorded (Figure 8). The average CPUE for this sampling period was calculated to be 0.8 TPM (Appendix A).

During Phase 4 of the Unalaska Bay sampling program, the *Alaskan Lady* continued to tow in transects perpendicular to the transit lanes beyond state waters, while the *Exito* towed in transects parallel to the crab fleet transit lanes into Unalaska Bay. The *Northern Fury* continued to monitor the waters within Unalaska Bay. In three days of sampling, 48 tows were completed, all single-net tows at depths between 3-8 feet (Figure 9). No oil was observed in any of the tows, resulting in an average CPUE of 0.0 TPM (Appendix A).

During Phase 4, the double tow method was introduced, which allowed the water column to be sampled at two depths. The *Alaskan Lady* towed parallel to crab fleet transit routes into Unalaska Bay with two nets: one at depths varying from 1-8 feet; another at depths between 6-12 feet. The *Exito* joined the *Northern Fury* within Unalaska Bay, both vessels sampling the

waters around crab vessels waiting to be offloaded. The *Exito* and *Northern Fury* used only one net per tow and sampled at 9-12 feet below surface. In a three-day sampling period, 74 tows were completed, resulting in eight oil observations (Figure 10). The average CPUE for this period was 0.9 TPM (Appendix A).<sup>1</sup>

Phase 4 also saw the introduction of standardized tow transects within Unalaska Bay, to facilitate comparison of CPUE data over time. There were eight designated towing stations, each approximately one mile in length, in the following general areas: Cape Cheerful, Eider Point, Wide Bay, Cascade Falls, Captains Bay, Ulakta Head, Summer Bay, and Princess Head.

Mid way through Phase 4, both the *Alaskan Lady* and the *Northern Fury* were fitted with equipment to conduct two-depth tows per vessel. One net was trawled at a near-surface depth of 0-6 feet, and another net varying between 6-12 feet deep. In effect, this doubled the volume of water sampled and the number of tows performed in a sampling period. During a four-day sampling period in Phase 4, 78 tows were completed, resulting in five oil observations (Figure 11). Most of these encounters involved multiple oil observations, resulting in an average CPUE of approximately 1.3 TPM (Appendix A).

From January 29-31, 2005, the sampling activity remained steady in the Unalaska Bay zone, as returning crab vessels and floating processors continued to pump seawater while anchored in the bay. Both the *Alaskan Lady* and the *Northern Fury* continued to conduct double-net tows within Unalaska Bay and at the mouth of the bay. In this three-day sampling period, 86 tows were conducted, resulting in three oil observations (Figure 12), and an average CPUE calculation of 0.3 TPM (Appendix A).

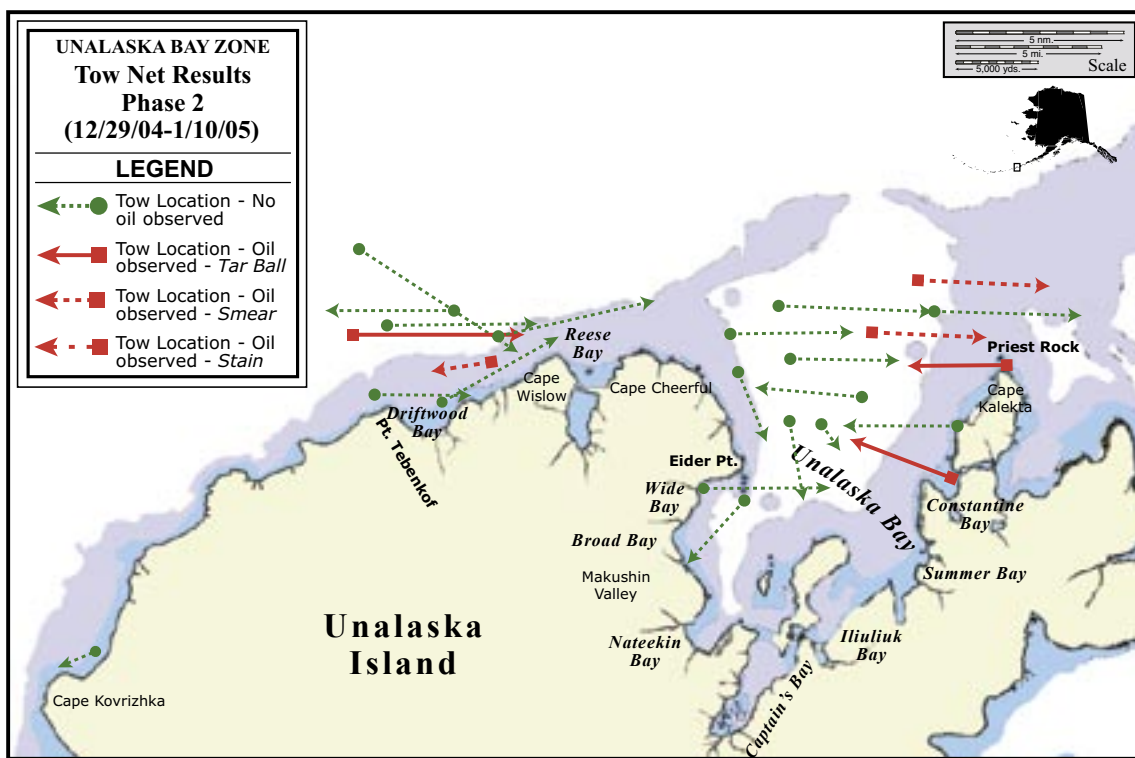
Double-net towing continued within Unalaska Bay from February 1-4, 2005, with a few tows conducted toward the mouth of the bay and further west, toward Cape Kovrizhka, in an effort to monitor potential influxes of oil into the bay from the still-leaking wreck. There were 84 tows completed with only one oil encounter (Figure 13), resulting in an average CPUE calculation of 0.05 TPM (Appendix A).

By February 5, 2005, the number of crab vessels at anchor in Unalaska Bay had declined, and the *Alaskan Lady* was dispatched to Spray Cape, to conduct a sampling survey in the South of Spill Impact Zone. The *Northern Fury* was relieved by the *F/V Commitment*, continuing to conduct tow net surveys in Unalaska Bay. By this time, tow net sampling had slowed in frequency to allow for the addition of the passive snare device sampling method. From February 7-15, the *Commitment* conducted 54 tows in four days within the Unalaska Bay Zone at standardized sites. This period of sampling resulted in six oil observations (Figure 14). The average CPUE for this period was calculated to be 0.6 TPM (Appendix A).

<sup>1</sup> The CPUE for some tows was not calculated, because the two were not in a straight line preventing the calculation of water volume sampled.

Unalaska Bay tow net sampling concluded at the end of Phase 4. During the last period of tow net sampling, the *Commitment* and then the *Northern Fury* alternately conducted the remaining tows at the standard towing sites. They collectively completed 68 tows in five scheduled towing days. There were nine oil observations (Figure 15), resulting in an average CPUE calculation of 2.6 TPM (Appendix A).

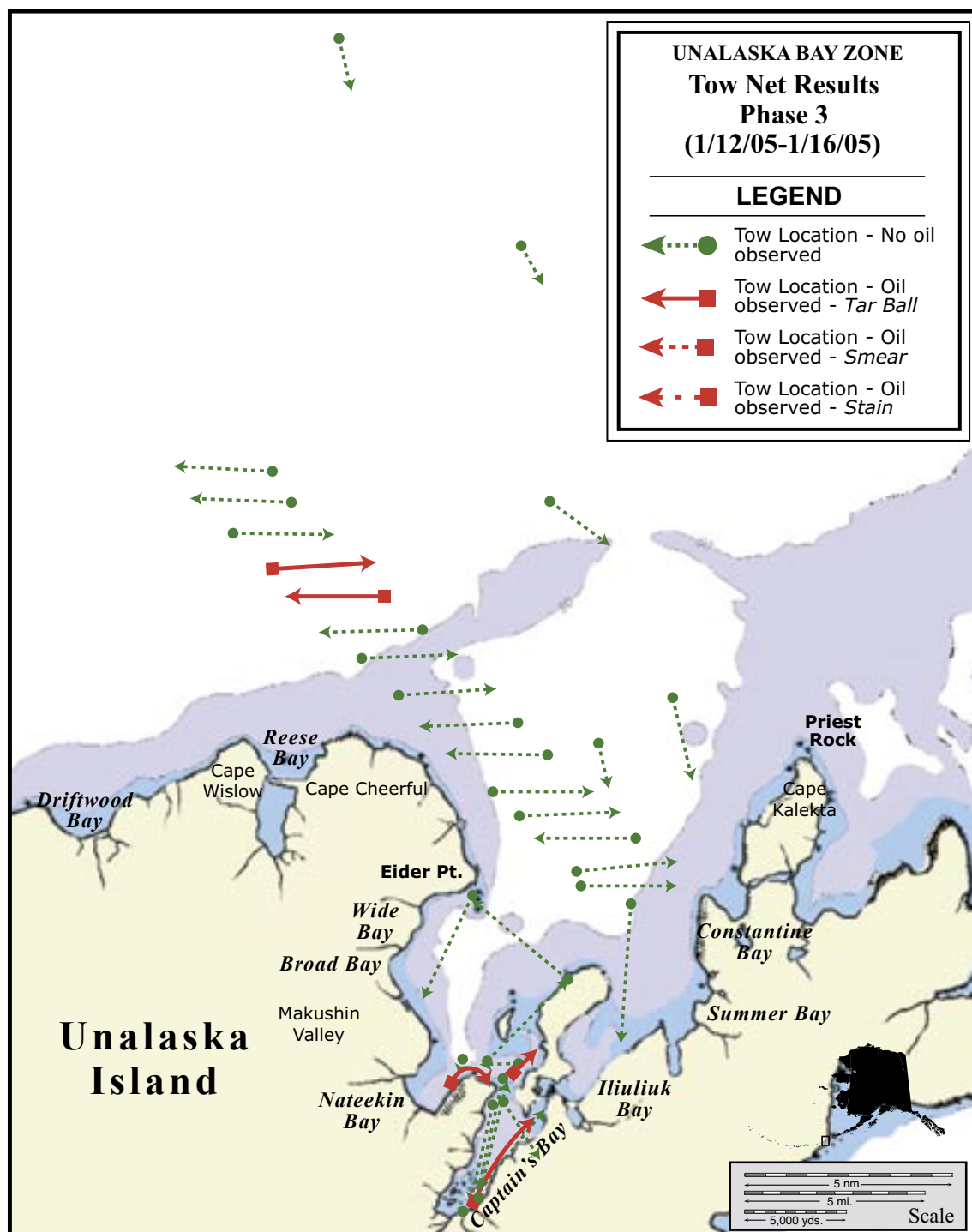
**Figure 6: Unalaska Bay Zone Tow Net Results Phase 2 (12/29/04- 1/10/05)**  
See Appendix A for data table.



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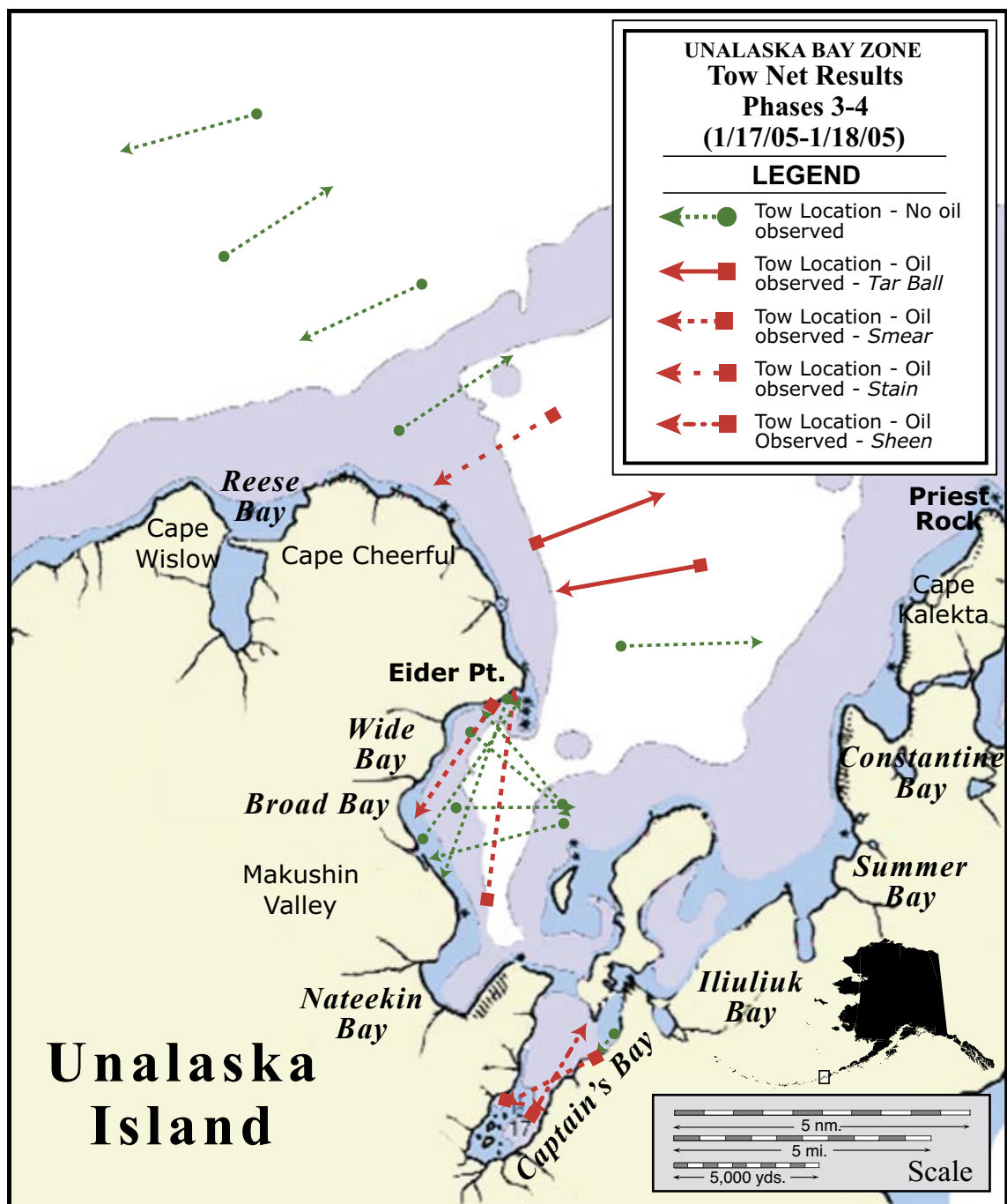
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**Figure 7: Unalaska Bay Zone Tow Net Results Phase 3 (1/12/05- 1/16/05)**  
See Appendix A for data table.



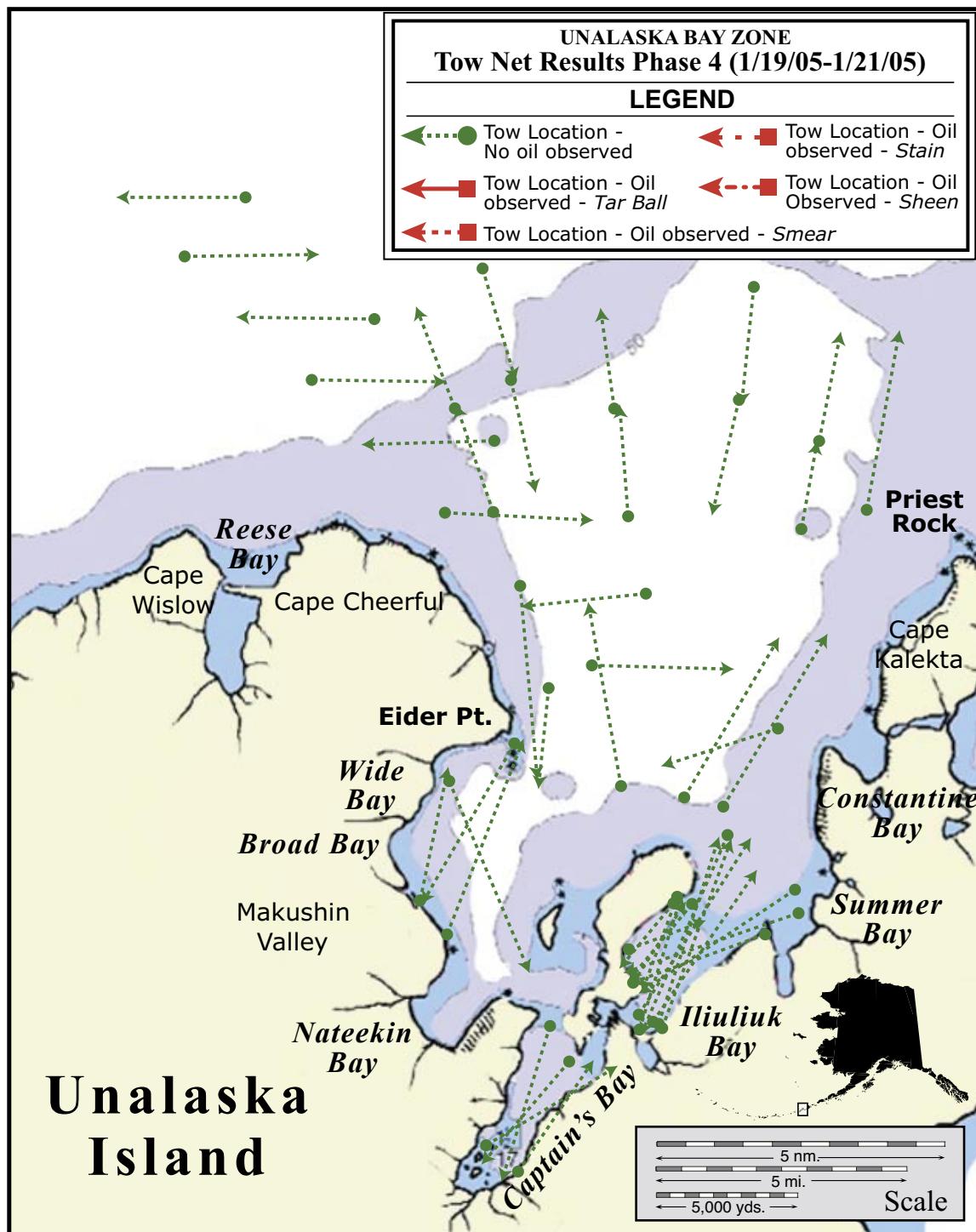
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**Figure 8: Unalaska Bay Zone Tow Net Results Phase 3-4 (01/17/05- 01/18/05)**  
See Appendix A for data table.



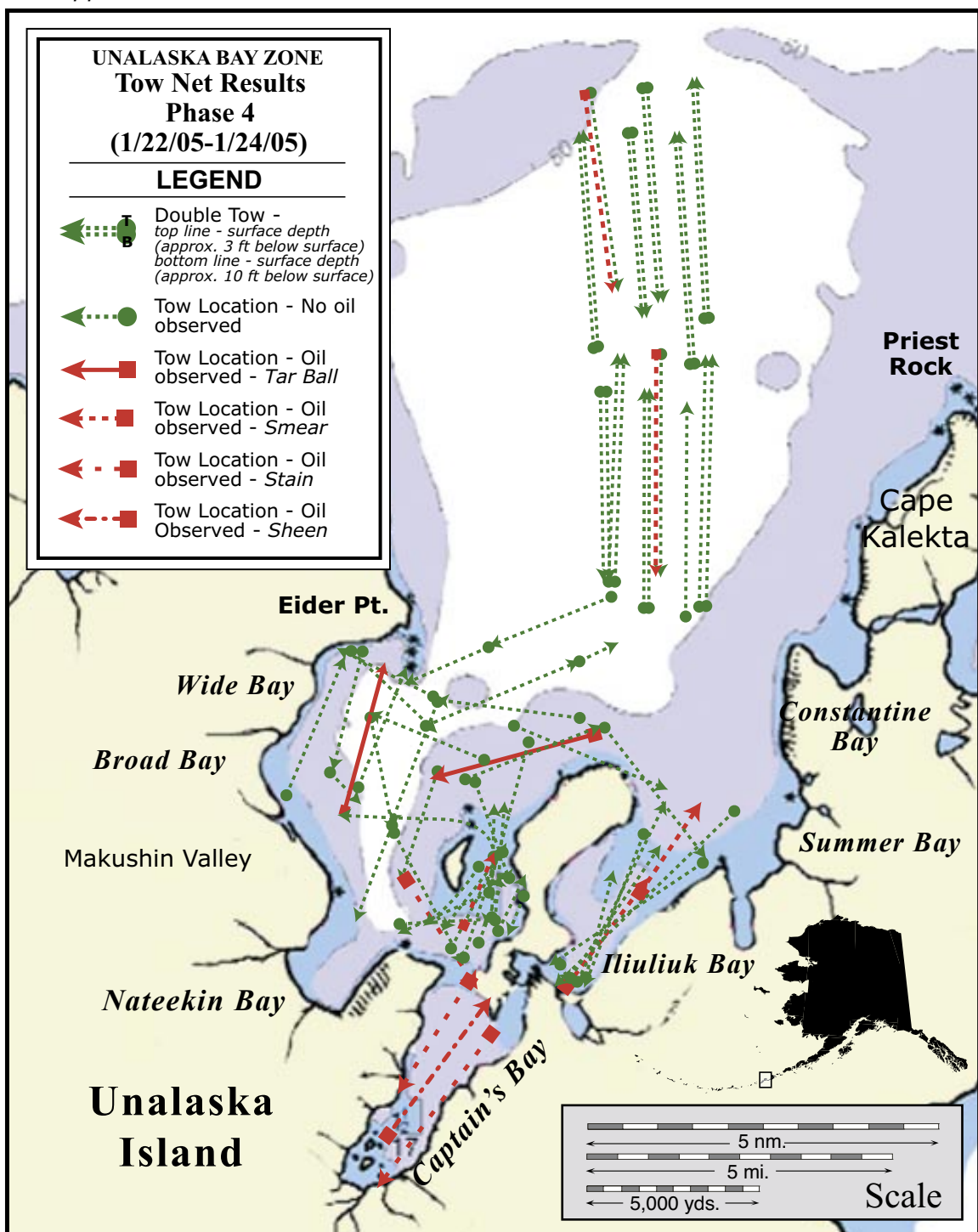
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**Figure 9: Unalaska Bay Zone Tow Net Results Phase 4 (1/19/05- 1/21/05)**  
See Appendix A for data table.



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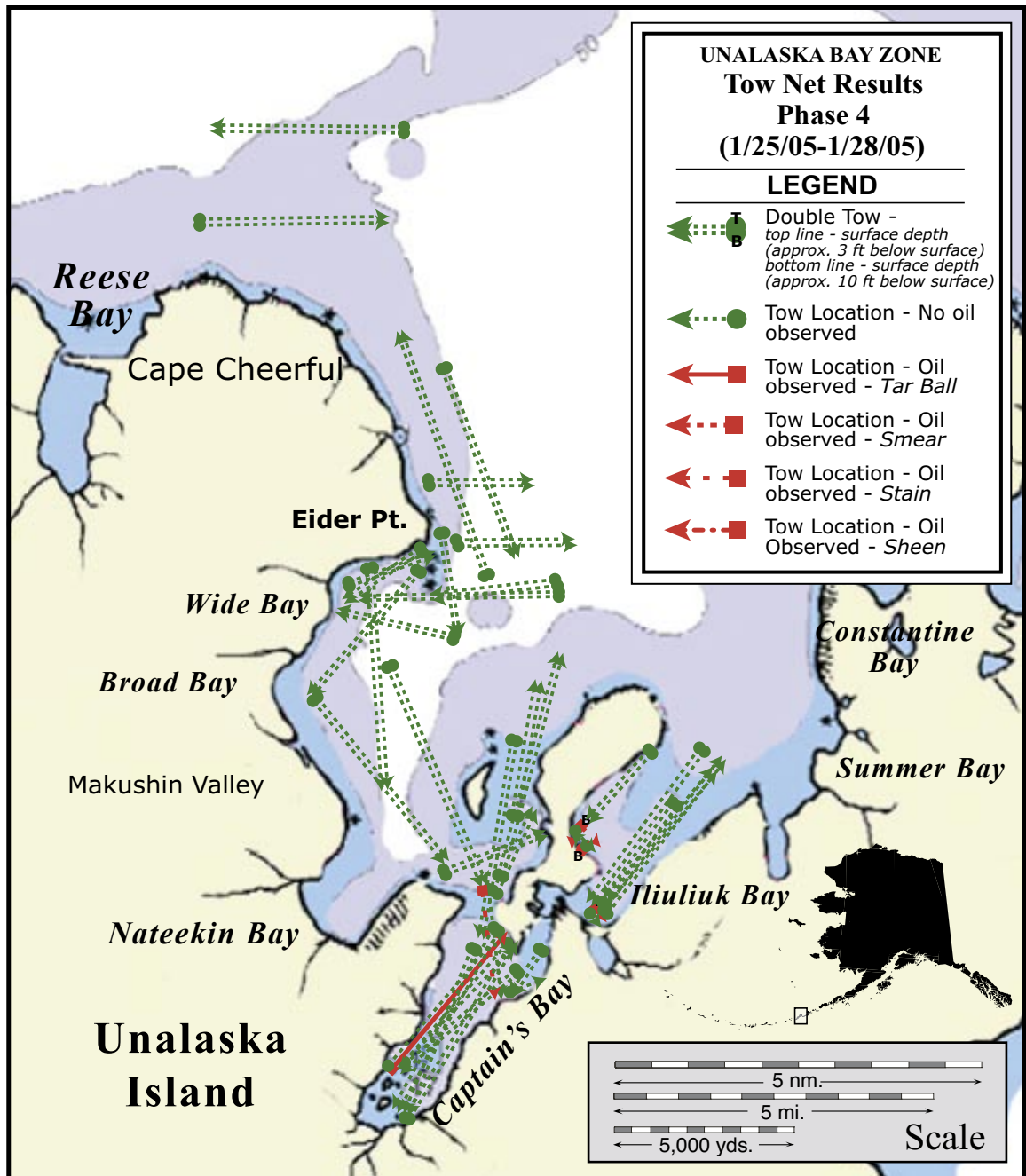
**Figure 10: Unalaska Bay Zone Tow Net Results Phase 4 (1/22/05- 1/24/05)**  
See Appendix A for data table.



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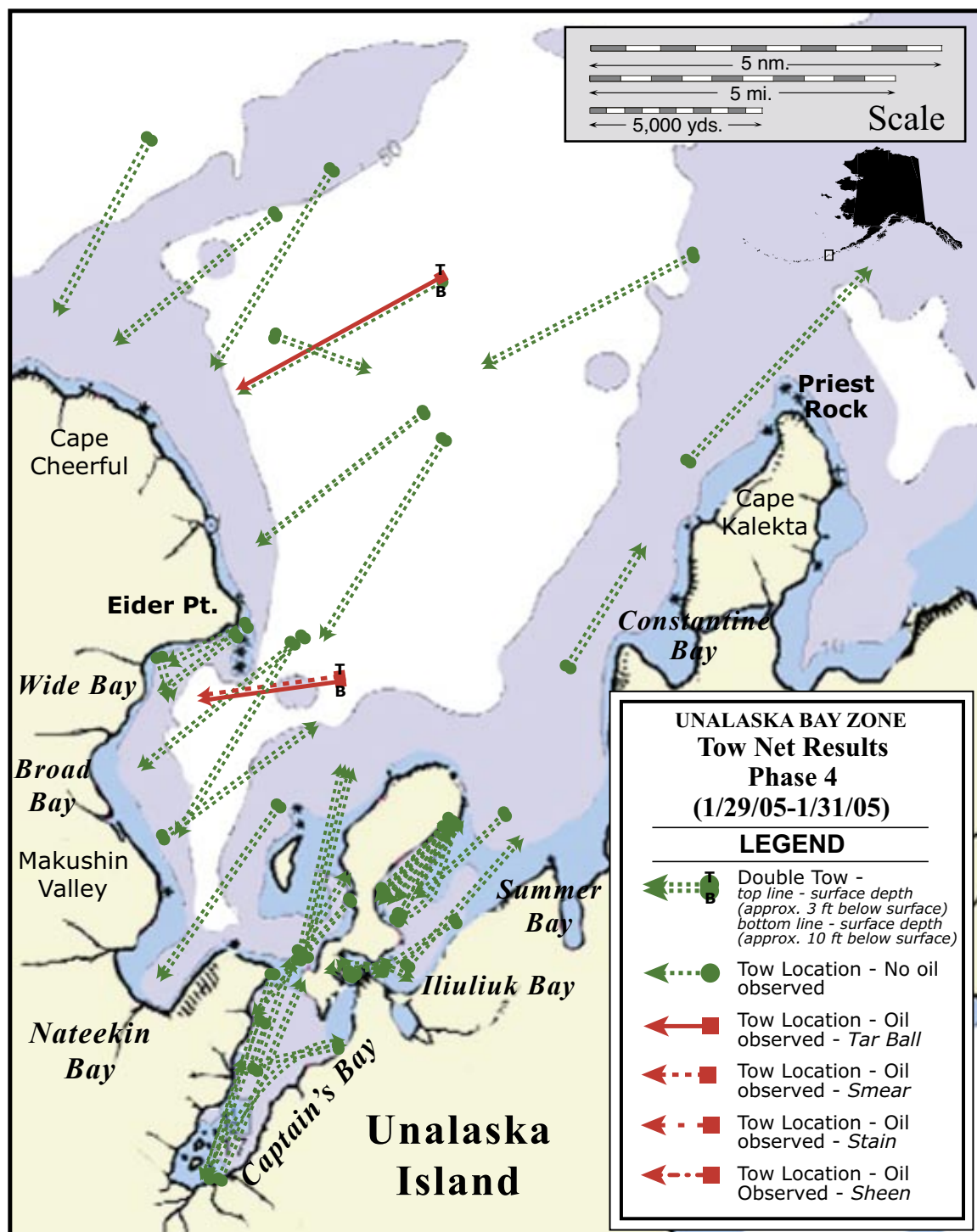
**Figure 11: Unalaska Bay Zone Tow Net Results Phase 4 (1/25/05- 1/28/05)**

See Appendix A for data table.



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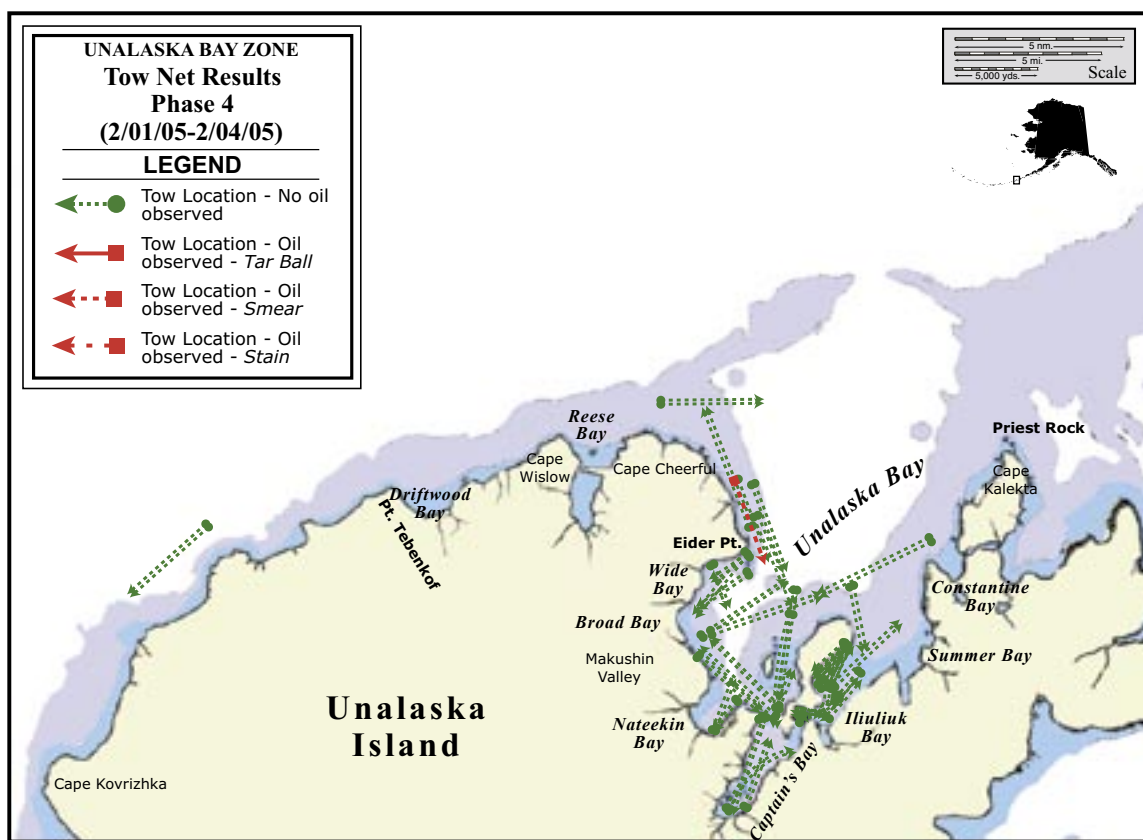
**Figure 12: Unalaska Bay Zone Tow Net Results Phase 4 (1/29/05- 1/31/05)**  
See Appendix A for data table.



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**Figure 13: Unalaska Bay Zone Tow Net Results Phase 4 (2/1/05- 2/4/05)**

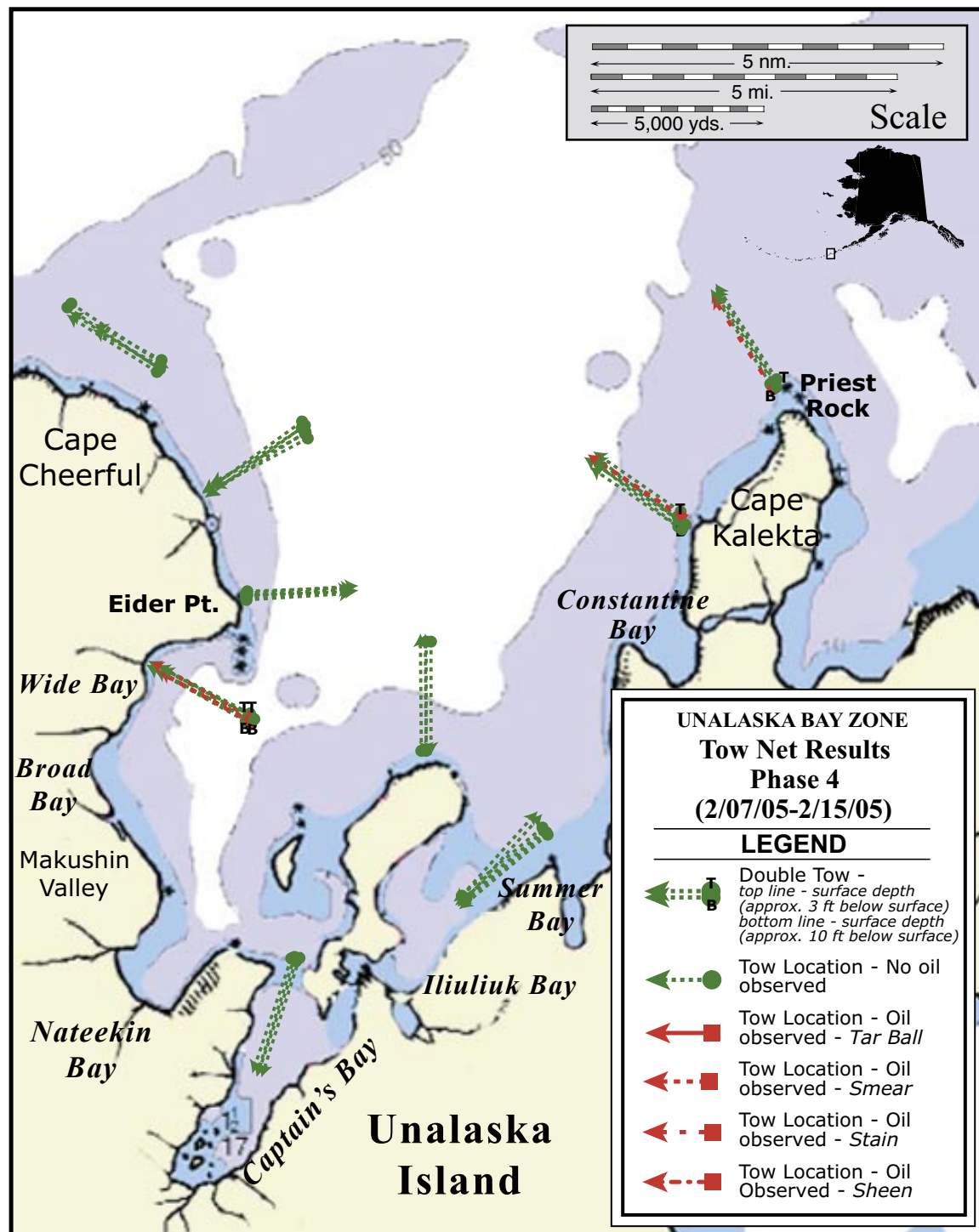
See Appendix A for data table.



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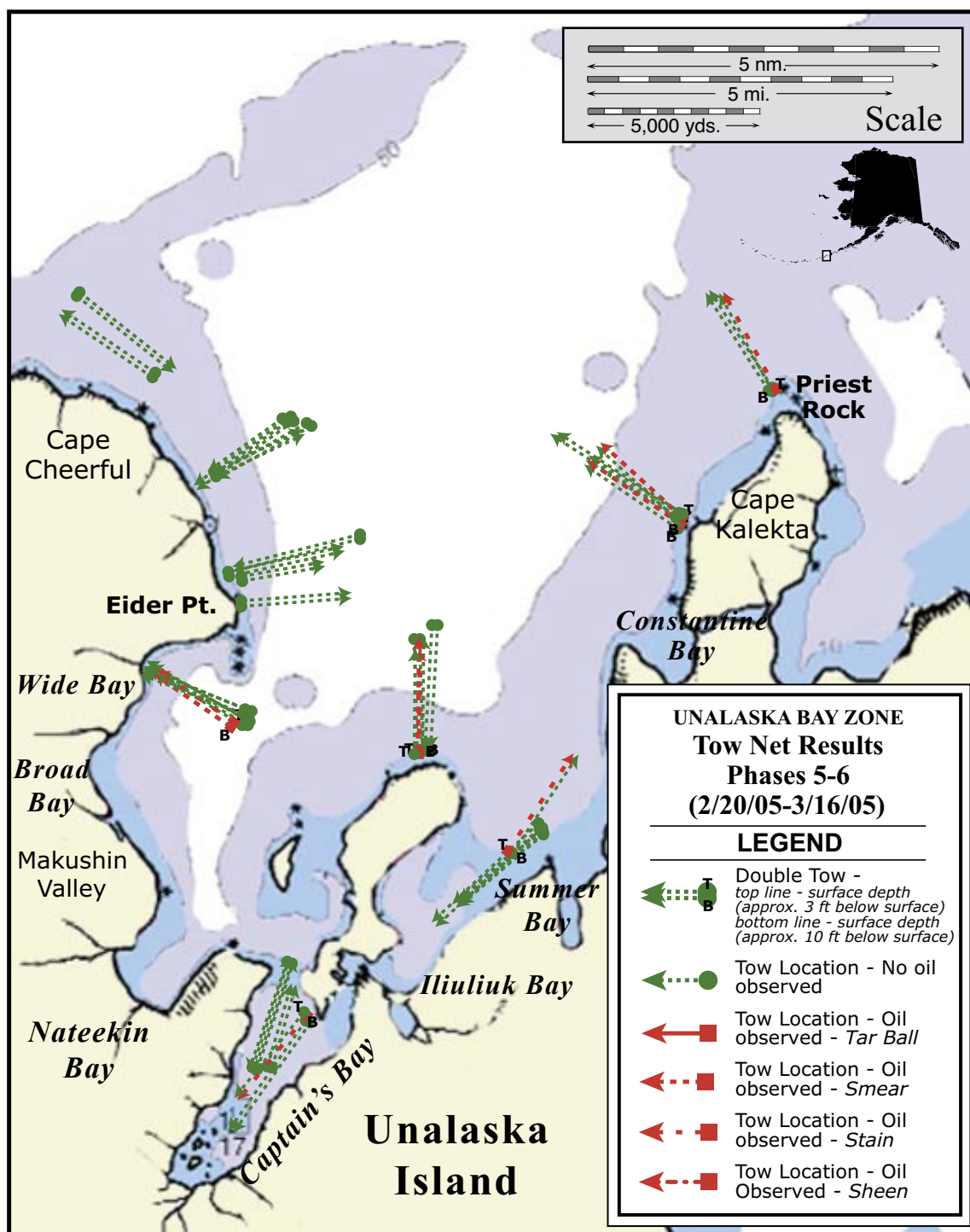
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**Figure 14: Unalaska Bay Zone Tow Net Results Phase 4 (2/7/05- 2/15/05)**  
See Appendix A for data table.



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**Figure 15: Unalaska Bay Zone Tow Net Results Phases 5&6 (2/20/05- 3/16/05)**  
See Appendix A for data table.



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